

GILA RIVER BASIN

09447000 EAGLE CREEK ABOVE PUMPING PLANT, NEAR MORENCI, AZ

LOCATION.--Lat 33°03'52", long 109°26'30", in SW¹/₄SE¹/₄ sec.23, T.4 S., R.28 E., Greenlee County, Hydrologic Unit 15040005, on right bank 2 mi upstream from Phelps Dodge Corp. pumping plant, 5 mi west of Morenci, and 12 mi upstream from mouth.

DRAINAGE AREA.--622 mi².

PERIOD OF RECORD.--April 1944 to current year.

REVISED RECORDS.--WSP 1850-C: 1966. WDR AZ-88-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,673.5 ft above sea level. Oct. 25, 1984 to Mar. 6, 1986, at site 1 mi upstream at datum 24.1 ft higher. Prior to Oct. 25, 1984, at various sites within 1 mi upstream from present site at different datums. Aug. 23, 1950 to Aug. 1, 1981, and since Mar. 6, 1984, supplementary gages at various sites within 1 mi upstream from present site at different datums. Feb. 7, 1993 to July 2, 1993 on right bank at different datum.

REMARKS.--Diversions above station for irrigation of about 500 acres, mostly above Willow Creek. Water from Black River was pumped into Eagle Creek basin, 52 mi upstream from this station, for the entire year and water was pumped from wells into Eagle Creek near Double Circle Ranch below Willow Creek for 7 months. The monthly quantities pumped are shown in table below. Diversion by pumping for industrial and municipal use in and near Morenci and Clifton are made from Eagle Creek, 3 mi downstream from this station and from San Francisco River near Clifton. Monthly quantities diverted are shown in the table below; 98 percent of the pumpage was from Eagle Creek.

AVERAGE DISCHARGE (unadjusted).--52 years, 70.5 ft³/s, 51,080 acre-ft/yr; median of yearly mean discharges, 38 ft³/s, 27,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,800 ft³/s Jan. 18, 1993, on basis of slope-area measurement; minimum, 2.9 ft³/s June 25, 1982.

Annual peak discharges

| Water year | Date | Annual peak discharge (ft ³ /s) | Discharge codes | Water year | Date | Annual peak discharge (ft ³ /s) | Discharge codes |
|------------|----------|--|-----------------|------------|----------|--|-----------------|
| 1916 | 01-18-16 | 36,000 | ES,HP | 1970 | 07-23-70 | 560 | |
| 1932 | 02-10-32 | 13,000 | HP | 1971 | 08-22-71 | 1,680 | |
| 1944 | 00-00-44 | 7,500 | | 1972 | 07-16-72 | 6,650 | |
| 1945 | 08-11-45 | 433 | | 1973 | 10-19-72 | 14,000 | |
| 1946 | 08-07-46 | 384 | | 1974 | 08-03-74 | 630 | |
| 1947 | 08-08-47 | 710 | | 1975 | 09-09-75 | 1,550 | |
| 1948 | 08-05-48 | 300 | | 1976 | 07-29-76 | 2,250 | |
| 1949 | 01-13-49 | 2,500 | | 1977 | 07-31-77 | 2,190 | |
| 1950 | 07-28-50 | 470 | | 1978 | 03-02-78 | 3,900 | |
| 1951 | 08-28-51 | 1,260 | | 1979 | 12-18-78 | 24,500 | |
| 1952 | 01-14-52 | 5,340 | | 1980 | 02-15-80 | 9,000 | |
| 1953 | 07-25-53 | 2,780 | | 1981 | 08-07-81 | 3,380 | |
| 1954 | 07-22-54 | 4,930 | | 1982 | 08-23-82 | 1,720 | |
| 1955 | 08-06-55 | 3,260 | | 1983 | 03-25-83 | 6,210 | |
| 1956 | 07-30-56 | 452 | | 1984 | 10-02-83 | 36,400 | |
| 1957 | 07-26-57 | 4,210 | | 1985 | 12-28-84 | 8,400 | |
| 1958 | 09-10-58 | 6,150 | | 1986 | 10-17-85 | 1,030 | |
| 1959 | 08-17-59 | 4,780 | | 1987 | 11-03-86 | 1,990 | |
| 1960 | 01-12-60 | 5,350 | | 1988 | 08-15-88 | 3,770 | |
| 1961 | 09-12-61 | 1,210 | | 1989 | 08-18-89 | 97 | |
| 1962 | 07-18-62 | 1,850 | | 1990 | 07-16-90 | 698 | |
| 1963 | 08-30-63 | 6,150 | | 1991 | 03-02-91 | 13,500 | |
| 1964 | 07-15-64 | 8,620 | | 1992 | 02-14-92 | 6,920 | |
| 1965 | 08-01-65 | 3,080 | | 1993 | 01-18-93 | ¹ 36,800 | |
| 1966 | 12-30-65 | 21,000 | | 1994 | 09-03-94 | 513 | |
| 1967 | 08-12-67 | 7,650 | | 1995 | 01-05-95 | 20,000 | |
| 1968 | 12-06-70 | 3,300 | | 1996 | 09-14-96 | 95 | |
| 1969 | 07-25-69 | 250 | | | | | |

¹Highest since 1916.

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Discharge rating table developed October 1994

| Gage height (ft) | Discharge (ft ³ /s) | Gage height (ft) | Discharge (ft ³ /s) |
|---------------------|-----------------------------------|---------------------|-----------------------------------|
| 2.0 | 42 | 9.0 | 7,220 |
| 3.0 | 64 | 10.0 | 9,550 |
| 4.0 | 164 | 11.0 | 12,100 |
| 5.0 | 655 | 12.0 | 14,870 |
| 6.0 | 1,800 | 13.0 | 17,830 |
| 7.0 | 3,320 | 14.0 | 20,990 |
| 8.0 | 5,130 | 14.4 | 22,300 |

Basin characteristics

| Main channel slope (ft/mi) | Stream length (mi) | Mean basin elevation (ft) | Forested area (percent) | Soil index | Mean annual precipitation (in) | Rainfall intensity, 24-hour | |
|-------------------------------------|--------------------------|------------------------------------|-------------------------------|---------------|---|-----------------------------|-----------------|
| | | | | | | 2-year (in) | 50-year (in) |
| 60.9 | 52.5 | 6,060 | 64.0 | 2.8 | 19.2 | 2.0 | 3.8 |

GILA RIVER BASIN

09447000 EAGLE CREEK ABOVE PUMPING PLANT, NEAR MORENCI, AZ--Continued

| MEAN MONTHLY AND ANNUAL DISCHARGES 1945-96 | | | | | | | MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1945-96 | | | | | | |
|--|--------------------|--------------------|-----------------|--|---------------------------------------|-----------------------------------|---|--|----------|-----------|----------|----------|-----------|
| MONTH | MAXIMUM (FT3/S) | MINIMUM (FT3/S) | MEAN (FT3/S) | STAN- DARD DEVIA- TION (FT3/S) | COEFFI- CIENT OF VARI- ATION | PERCENT OF ANNUAL RUNOFF | PERIOD (CON- SECU- TIVE DAYS) | DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT | | | | | |
| | | | | | | | | 2 50% | 5 20% | 10 10% | 20 5% | 50 2% | 100 1% |
| OCTOBER | 1,170 | 13 | 60 | 164 | 2.8 | 7.1 | | | | | | | |
| NOVEMBER | 228 | 10 | 35 | 35 | 1.0 | 4.2 | | | | | | | |
| DECEMBER | 884 | 11 | 87 | 160 | 1.8 | 10.2 | 1 | 12 | 7.2 | 5.4 | 4.2 | 3.2 | 2.6 |
| JANUARY | 4,440 | 11 | 184 | 630 | 3.4 | 21.7 | 3 | 12 | 7.6 | 5.7 | 4.5 | 3.4 | 2.7 |
| FEBRUARY | 1,760 | 11 | 135 | 290 | 2.1 | 16.0 | 7 | 14 | 8.4 | 6.3 | 4.9 | 3.7 | 3.0 |
| MARCH | 709 | 14 | 109 | 151 | 1.4 | 12.9 | 14 | 15 | 9.8 | 7.5 | 5.9 | 4.5 | 3.7 |
| APRIL | 214 | 11 | 53 | 41 | 0.78 | 6.3 | 30 | 17 | 12 | 9.0 | 7.2 | 5.5 | 4.6 |
| MAY | 84 | 9.2 | 33 | 16 | 0.50 | 3.9 | 60 | 19 | 13 | 11 | 8.9 | 7.2 | 6.2 |
| JUNE | 49 | 5.3 | 25 | 9.4 | 0.38 | 2.9 | 90 | 20 | 14 | 12 | 9.9 | 8.1 | 7.1 |
| JULY | 98 | 16 | 37 | 17 | 0.45 | 4.4 | 120 | 23 | 16 | 13 | 11 | 9.6 | 8.5 |
| AUGUST | 203 | 19 | 55 | 38 | 0.70 | 6.5 | 183 | 26 | 20 | 17 | 15 | 13 | 12 |
| SEPTEMBER | 114 | 13 | 35 | 19 | 0.54 | 4.1 | | | | | | | |
| ANNUAL | 568 | 17 | 71 | 86 | 1.2 | 100 | | | | | | | |

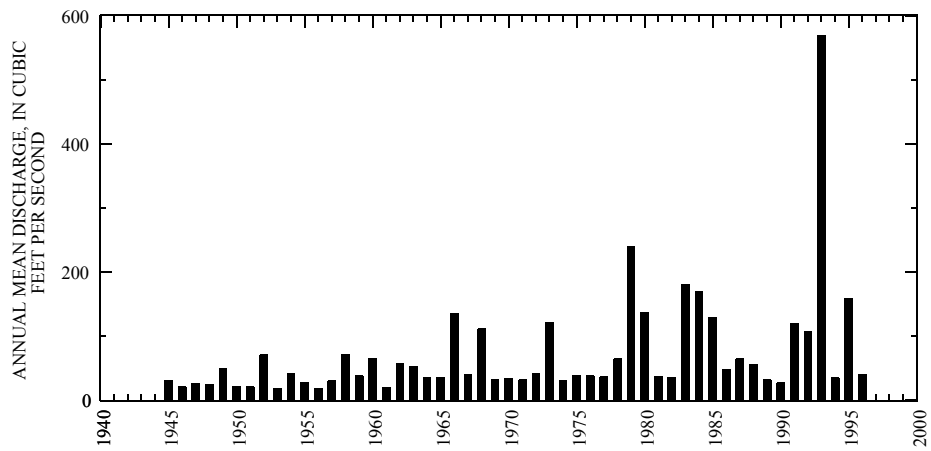
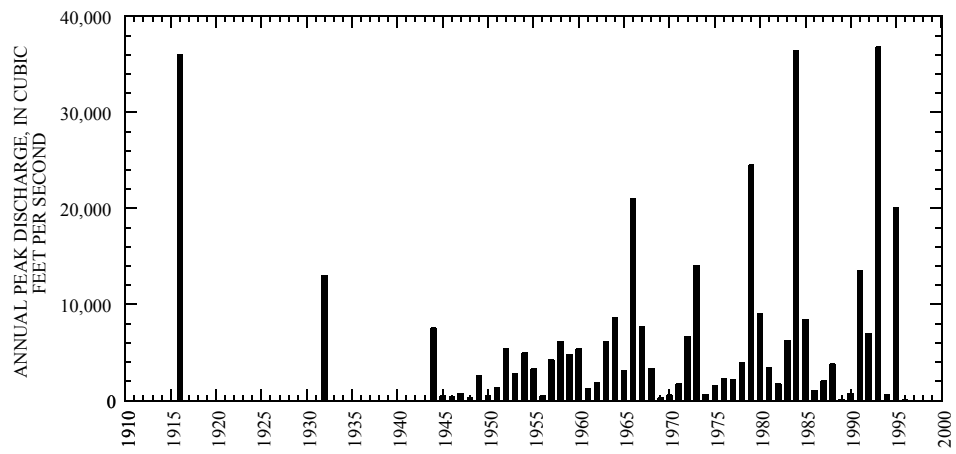
| MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON PERIOD OF RECORD 1944-96 | | | | | | | MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1945-96 | | | | | | |
|--|----------|-----------|----------|----------|-----------|--|--|--|----------|-----------|----------|----------|-----------|
| DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT | | | | | | | PERIOD (CON- SECU- TIVE DAYS) | DISCHARGE, IN FT3/S, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT | | | | | |
| 2 50% | 5 20% | 10 10% | 25 4% | 50 2% | 100 1% | | | 2 50% | 5 20% | 10 10% | 25 4% | 50 2% | 100 1% |
| | | | | | | | 1 | 708 | 2,900 | 6,320 | 14,900 | 26,400 | 44,700 |
| | | | | | | | 3 | 428 | 1,700 | 3,690 | 8,860 | 16,000 | 27,700 |
| | | | | | | | 7 | 271 | 987 | 2,080 | 4,860 | 8,670 | 14,900 |
| | | | | | | | 15 | 180 | 605 | 1,240 | 2,870 | 5,120 | 8,840 |
| | | | | | | | 30 | 132 | 394 | 756 | 1,610 | 2,730 | 4,480 |
| | | | | | | | 60 | 96 | 267 | 500 | 1,050 | 1,750 | 2,870 |
| | | | | | | | 90 | 79 | 208 | 379 | 769 | 1,260 | 2,030 |
| 2,730 | 8,300 | 14,400 | 24,900 | 35,000 | 47,000 | | | | | | | | |
| WEIGHTED SKEW (LOGS)= -0.32 | | | | | | | | | | | | | |
| MEAN (LOGS)= 3.40 | | | | | | | | | | | | | |
| STANDARD DEV. (LOGS)= 0.61 | | | | | | | | | | | | | |

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1945-96

| DISCHARGE, IN FT3/S, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME | | | | | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|-------|
| 1% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% | 99.5% | 99.9% |
| 686 | 168 | 88 | 58 | 46 | 38 | 33 | 30 | 26 | 23 | 19 | 15 | 12 | 10 | 9.0 | 7.3 | 4.2 |

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